Web Development Standards – 2008

Web Development —CIP Code: 11.0230
Grade Level: 10-12   Units of Credit: 1 (1 year or 2 semesters)
Prerequisite: Computer Technology
Skill Certification Exam: #893 IT Web Development
Optional Industry Tests: CIW Foundations, Adobe Web Communication

Course Description
Web Development is a course designed to guide students in a project-based environment in the development of up-to-date concepts and skills that are used in the development of today's websites. Students will learn the basic fundamentals of how the Internet works. They will learn and use the basic building blocks of the World Wide Web: XHTML coding, Cascading Style Sheets (CSS), and JavaScript. They learn and follow the steps to create a website by planning, designing, developing, deploying, and maintaining of the website projects. Students will learn and use different scripting technologies to create more dynamic and interactive websites. They will learn what it takes for a career in Web Development as they complete projects and create their own Web portfolio.

Course Standards and Objectives
Standard 01 -- Internet Standards & Fundamentals
Students will understand the basic principles of how the Internet is constructed, how it functions, and how it is used.
Objectives:

0101 Internet infrastructure --Identify the infrastructure required to access the Internet, including hardware, software components, and providers.

0102 Internet development & functions -- Understand how the Internet was developed and how works including web servers, routers, packets, IP Address, the "backbone", firewalls, and port forwarding.

0103 Purpose of domains -- Understand the purpose of an IP address and a domain name.

0104 IP addresses -- Understand the differences between static and dynamic IP addresses.

0105 DNS -- Understand the function of a Domain Name Server (DNS) and how to register a domain name.

0106 Protocols -- Define important Internet communications protocols and their roles in delivering basic Internet services such as http, https, ftp, tcp-ip, etc.

0107 Copyright -- Demonstrate knowledge of standard copyright rules (defining related terms, obtaining copyright for original creations, using creative commons license, obtaining permission, and citing copyrighted material).

0108 AUP -- Understand the use and purpose of acceptable use policy (AUP).

0109 Ethical behavior -- Use ethical behavior as described in the AUP.

0110 Terminology – Review and understand the pertinent terminology.

Standard 02 -- Fundamentals of XHTML
Students will use XHTML standards & coding to create "well formed" web pages.
Objectives:

0201 Create pages -- Demonstrate knowledge required to create a web page.

0202 File naming -- Save web pages and files in a logical folder organization and with appropriate naming.

0203 XHTML structure – Know and use the rules to create "well formed" web pages with appropriate XHTML structure and standards that can be validated. (W3C)
- All documents must have a root element
- XHTML is case sensitive
- All elements must have a closing tag
- XHTML elements must be properly nested
- Attribute values must appear within quotation marks
- Full attribute form must be used for all attributes
- Empty elements must be closed

0204 XHTML types – Understand and use the DOCTYPE Declaration (DTD) in the types of XHTML including strict and transitional. (Frameset DTD is optional)

0205 XHTML elements -- Use the required and basic elements (tags and attributes) at the block level and inline to create web pages with text formatting, links, images, special characters, lists, tables, etc.

0206 Deprecated tags – Understand deprecated tags and the differences between html and xhtml.

0207 Metatags --Use Metatags for page documentation and search engine optimization (SEO).

0208 Design principles -- Identify and use design and color principles for web pages.

0209 GUI editor – Use a GUI-based HTML editing software to create web pages.

0210* Advanced elements – Use advanced elements to create web pages with image maps to web pages, forms, frames, and/or iframes.

0211 Terminology – Review and understand the pertinent XHTML terminology.

Standard 03 – Cascading Style Sheets (CSS)
Students will format web pages using CSS formatting:
Objectives:

0301 CSS inline styles – Use basic CSS method of formatting a single element using inline styles. *<tag* style=*property*: *value>*

0302 CSS formatting -- Define and apply essential aspects of the CSS structure.

0303* CSS sheets -- Create and use internal, embedded, and external style sheets. Example:
```
<style type="text/css">
selector {property: value}
p {color: blue}
</style>
```

0304* Contextual selectors – Use contextual selector to specify formatting for an element, but only when it is contained in another element.

0305* Class & id selectors – Create and use class and id selectors to add a variety of styles to different elements. .

0306* Elements: div & span --Use div and span elements formatting with CSS as the layout of a web page.

0307* CSS hierarchy -- Understand the cascading order of CSS.

0308* CSS attributes – Use CSS to set properties for color, size, font, images, spacing, line height, indenting, alignment, style, placement, etc.

0309* CSS navigation -- Use CSS to form professional looking navigation.

0310 Terminology – Review and understand the pertinent CSS terminology.

Standard 04 – Site Planning and Design

Students will plan, design, add content, and maintain web pages.

Objectives

0401 Project requirements
- Identify the purpose, audience, and audience needs for a website.
- Demonstrate knowledge of website accessibility standards that address the needs of people with visual and motor impairments. Such as using alt tags, strong instead of bold, etc..
- Identify and follow the steps in the website planning and development process.

0402 Planning site design and page layout
- Demonstrate knowledge of best practices for designing a website; such as, maintaining consistency, separating content from design, using standard fonts and Web-safe colors.
- Identify basic principles of website usability, readability, and accessibility.
- Plan a website by using sketches, website hierarchy, or a site map.
- Communicate with others (such as peers and clients) about design and content plans.
- *Produce website designs that work equally well on various operating systems and browser versions/configurations.
- *Plan, communicate, or present a client's website before, during or after website development.

0403 Create content for website
- Create and prepare 2D images.
- Prepare rich media; such as, video, sound, or animation.
- *Identify when to use various image and digital media file formats.
- *Edit, and slice images for web content.
- *Insert navigation bars, rollover images, or buttons created in graphics editor.

0404 Uploading and maintaining a site
- Understand and be able to describe the capabilities of web servers.
- Upload pages to a web server.
- Conduct basic technical tests such as validating the website (wc3 compliant), accessibility, SEO, etc.
- Present web pages to others for quality assurances (QA) such as team members and clients for feedback and evaluation on technical merits and usability.
- *Identify methods for collecting site feedback, such as using counters, feedback forums, Google Analytics.
- *Provide site maintenance using bug reports, backups, and promotion.
- *Document all aspects of website maintenance.

0405* Web server (Optional Objective)
- Install a web server on a computer or virtual machine such as wamp, iis, apache etc.
- Identify the benefits and drawbacks of running your own web server versus using a service provider.

0406 Terminology – Review and understand the pertinent terminology.

Standard 05* – Scripting and Interactivity
> Students will understand and use both server and client scripting to create dynamic and interactive web pages.

Objectives

> **0501* Scripting fundamentals** -- Understand and be able to describe programming-related terms dealing with servers, scripts, and databases.

> **0502* Server & client scripting** -- Understand and be able to describe differences between popular client-side and server-side programming languages.

> **0503* Scripting technologies** -- Identify and use technologies for enhancing the user's Web experience, including: web forms and programming languages such as JavaScript, PHP, Perl, ASP, etc.

> **0504* Database connections** -- Understand when to use popular tools to connect a web server to a database.

> **0505* Database concepts** -- Recognize essential database concepts including the following: (1) tables, (2) a row—also called a record or tuple, and (3) columns-also called a field.

> **0506* Database implementation (Optional)** – Implement interactivity using connections between the web pages and a database.

> **0507* Terminology –** Review and understand the pertinent terminology.

Standard 06 -- Exploration & Preparation for Careers in Web Development
> Students will explore careers in Web Development and prepare a portfolio of projects created.

Objectives

> **0601 IT Web Development careers --** Identify job roles in the Information Technology (IT) industry as they apply to web development including the responsibilities, tasks, and skills they require.

> **0602 Student portfolio --** Prepare an electronic portfolio of projects developed in the class.

> **0603* Emerging technologies** -- Explore new and emerging Web technologies such as Web 2.0, content management systems, wikis, blogs, forums, etc.

> **0604 Terminology –** Review and understand the pertinent terminology.

*Material to be covered in the second semester.
C Lyman 8Oct2008